donor cells in blood vessels throughout the heart (63% of total cells enumerated). Rarer donor cells were also found through the myocardium in cells with patterns exhibiting the cross-striations of striated muscle. Donor cells stained positive for Troponin I-C (specific for cardiac muscle Troponin I) and for myosin heavy chain (1-2 cells per 10-20 high power fields). **Conclusion:** We documented engraftment and differentiation of donor UCB cells into cardiac myocytes in a child transplanted for MPS III. It is possible that donor cells may selectively homed to damaged myocardium and subsequently differentiated in situ. After engraftment, differentiation into myocardial cells may improve cardiac function and subsequently diminish the likelihood of progressive heart failure with its attendant morbidity and mortality in patients with MPS syndromes.

SUPPORTIVE CARE

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LOWER POST-TRANSPLANT SERUM ALBUMIN LEVELS PREDICT SIGNIFICANTLY POORER SURVIVAL AFTER ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION

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Low serum albumin is a non-specific but powerful indicator of poorer outcome in elderly and hospitalized patients, after surgery, and in several other circumstances including on routine testing (Goldwasser Feldman, J Clin Epidemiol 1997;50:693-703). Based upon the observation that patients with significant complications after transplantation usually have lower albumin levels and those with higher albumin levels are usually well, we analyzed the relationship between post-transplant albumin levels and overall survival in recipients of non-myeloablative allogeneic transplantation (NMAT). Overall survival (OS) was chosen as an endpoint rather than disease-free survival because a number of patients relapsing after NMAT attain remission again and survive long-term, and a higher albumin level after relapse may be a predictor of better outcome too. 47 consecutive NMAT recipients with hematologic malignancies (27-66 years; median 51) were studied. The conditioning regimen was 100 mg/m^2 melphalan on day -1 (+ 50 mg/kg cyclophosphamide on day -2 if no prior autograft), cyclosporine (HLA-matched sibling donor; n = 32) or tacrolimus (1-locus mismatched sibling donor; n = 3, or unrelated donor; n = 12), and mycophenolate mofetil. Albumin levels on days 0, 30, 60 and 90, and average albumin levels over weeks 1-2, 3-4, 5-6, 7-8, 9-10, 11-12, and 13-16 were analyzed. All comparisons were for <3 vs ≥3 g/dL except weeks 1-2 and 3-4 where a <2.5 vs ≥2.5 g/dL cut-off was used because most patients had relatively low albumin levels for the first month. In each of the 11 comparisons, the group with the lower albumin level had a lower probability of OS at 18 months. The table shows the OS differences were statistically significant. This analysis confirms our clinical impression of the poor prognostic implication of low albumin levels after allogeneic transplantation. Further work is required to explore how the outcome of patients with low albumin can be improved by modifying medical management.

Table.

	Higher Albumin		Lower Albumin		
Time	n	1-y OS (95% CI) (%)	n	1-y OS (95% CI) (%)	P
Day 60	25	73 (51-94)	13	48 (19-78)	0.01
Weeks 1-2	24	75 (56-94)	23	20 (0-51)	0.01
Weeks 3-4	24	76 (56-97)	22	35 (9-61)	0.01
Weeks 5-6	27	69 (48-90)	17	42 (17-67)	0.02
Weeks 7-8	24	78 (58-97)	14	33 (5-62)	0.003
Weeks 9-10	24	74 (54-94)	11	47 (14-79)	0.05

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TEMPO OF NEUTROPHIL RECOVERY AND THE DEFINITION OF MYELOID ENGRAFTMENT AFTER ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION (HSCT) IN PATIENTS NOT RECEIVING GROWTH FACTORS POST-TRANSPLANT

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Time to myeloid recovery after HSCT is usually defined as the first of 3 consecutive days with an absolute neutrophil count (ANC) of 0.5 × 10^9/L. HSCT registries and FACT require ANC ≥0.5 for 3 days as adequate evidence of engraftment. The first day with ANC ≥0.5 can be considered the day of engraftment in autograft recipients (Bone Marrow Transplant 2002;30:749-752). We have shown this in 78 allograft recipients too (Rihn et al. ASH 2002). However, the allograft study was limited by the fact that most patients had received G-CSF post-transplant, and the stem cell source was not uniform. We have now studied 49 patients allografted using blood stem cells who did not receive post-transplant G-CSF to see if the tempo of myeloid recovery was sustained. The conditioning regimen, 100 mg/m^2 melphalan (+ 50 mg/kg cyclophosphamide if no prior autograft), induced severe neutropenia (ANC <0.1) in all patients. The CD34+ cell dose was 1.4-11.8 × 10^6/kg (median 5.0). The time to ANC ≥0.5 was 10-23 days (median 13). Potentially acceptable evidence of engraftment, ANC on the 2 days following an initial value of ≥0.5, was available in 46 (94%). The remaining 3 patients had ANC ≥0.5 for the first and second days but died after that (n = 2) or did not have a differential count available (n = 1). ANC increased from day 1 to 2 in 41 of 46 patients, and declined in 5 (≥0.5 in 2, <0.5 in 3. 2 of the latter had ANC ≥0.5 the next day). ANC increased from day 2 to 3 in 44 of 46 patients, and declined in 2 (≥0.5 in both). ANC increased from day 1 to 3 in 45 of 46 patients; declining below 0.5 in 1 patient. Thus, in 43 of 46 patients, the first day with ANC 0.5 was also the first of 3 consecutive days with ANC 0.5. These data support our previous observations that in the majority of allografted patients, ANC does not decline significantly immediately after recovering to ≥0.5 whether or not myeloid growth factors are administered post-transplant. Therefore, it is not essential to obtain WBC counts on 3 consecutive days to define myeloid engraftment. The first day with ANC ≥0.5 should be considered the day of myeloid engraftment in allograft as well as autograft recipients. This simple change in definition and practice has significant potential impact on convenience (unnecessary clinic visits for patients; particularly out-patient mini-allografts), cost (blood counts, home health visits, ancillary charges), and compliance (acceptable definition of engraftment by HSCT registries and FACT).

Table.

	Day 1	Day 2	Day 3
ANC (10^9/L)	0.74 (0.53-2.10)	1.43 (0.36-10.94)	2.46 (0.44-30.74)
Change from Day 1 (%)		+67 (−36 to +574)	+176 (−21 to +1793)
Change from Day 2 (%)			+50 (−17 to +1925)
ANC <0.5 (n)	0	3 (7%)	1 (2%)

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INTERACTION BETWEEN DONOR TYPE AND CMV SEROSTATUS ON MORTALITY AFTER ALLOGENEIC HSCT: DO PREEMPTIVE APPROACHES WORK EQUALLY FOR ALL?

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Background: In the current era of effective preemptive antiviral approaches, cytomegalovirus (CMV) is now a rare cause of early mortality after hematopoietic stem cell transplantation (HSCT). Though the direct effects of CMV (such as CMV pneumonia) have been largely eliminated, many recent cohort studies (reviewed in